SPECIFICATIONS PURSUANT TO KT-CT.3.5# - DESIGNATION OF TIMBER, CUTTING UNIT BOUNDARIES, AND SUBDIVISION/PAYMENT UNIT BOUNDARIES

Timber Designation Table

Cutting Unit/ Subdivision/Area/ Payment Unit	Tree Paint Color	Designation or Specification
All Units	Green	Hazard Tree. Notwithstanding BT.3.2 all dead and unstable live trees which are leaning towards a road or are otherwise hazardous to a road, and are sufficiently tall to reach Contractor's landings or the roadbed of National Forest System roads within Contract Area, shall be felled by Contractor when Marked in the specified paint color above and below stump height by Forest Service in advance of felling any other timber in the vicinity. Pieces meeting Utilization Standards from such dead and unstable live trees shall be removed unless Contractor is notified in writing that removal would cause unacceptable damage to areas requiring special protection such as residual timber, roads, administrative sites, streamside management zones, and areas identified on Contract Area Map or on the ground.
All Units	Blue	Individual Tree Mark. Individual trees are designated for cutting only if Marked above and below stump height with the specified paint color.
N/A		Leave Tree Mark. All live N/A are designated for cutting unless Marked as leave trees. Leave trees are Marked above and below stump height with the specified paint color. Contract Area Map indicates areas plainly identified on the ground where leave trees are Marked to be left uncut.
All Units	White	Wildlife Trees. Notwithstanding the designation for cutting under BT.3.1, BT.3.3, BT.3.4,or BT.3.5, trees which are identified by standard Forest Service metal wildlife tree sign or painted with the specified paint color on the uphill and downhill side, shall be left uncut. In event such trees are destroyed in Contractor's Operations, Forest Service may designate alternate trees to be saved.
All Units	Black	Marked Out Trees. When it is necessary to delete previously marked trees, an unique tree marking paint color will be Marked over or adjacent to the original mark, but will not obscure the original marking. Trees Marked with the original marking paint color and the unique tree marking paint color are not Included Timber.
N/A		Designation by Spacing KT-CT.3.5.1#
N/A		Designation by Species and Diameter, KT-CT.3.5.2#

N/A	[redacted]	Designation by Damage Class, KT-CT.3.5.3#
N/A	[redacted]	Designation by Row Spacing, KT-CT.3.5.4#

Subdivision/Payment Unit and Cutting Unit Boundary Designation Table

Subdivision/Payment Unit	Boundary Paint Color	Boundary Designation
All Units	Orange	Boundary line trees are marked at eye level with three (3) slanted slash marks and a spot at ground level with the eye level marks facing into the interior of the subdivision. Yellow boundary posters with project names and subdivisions are stapled to boundary trees and face outward at locations where the subdivision boundary intersects or coincides with roads
Cutting Unit	Boundary Paint Color	Boundary Designation

SPECIFICATIONS PURSUANT TO TEMPORARY FACILITY INSTALLATION AND REMOVAL

Location	Facility	Required Action
Unit 28	Temporary Streamcourse Crossing	A temporary bridge will be placed across the stream as shown on the contract area map. The bridge surface will be placed above the stream on footings that will not be in the creek so that flows are not affected. There will be no instream work during construction or removal of the bridge except to cross the creek to place the footing and lay the temporary bridge structure on the footing. The span between footings is about 25 feet. The crossing structure will be removed once hauling activities are completed.

Material Source Table

Material	Type of Purchase	Owner(s)	Unit of Measure	Unit Price	Estimated Quantity	Total
		Not Applicable				

Contract Road Maintenance Requirements Summary

Road	Termini		Miles	Prehaul			During Haul			Post Haul		
	From	To		T801	T803		T803	T806		T803		
38N27.07	37N05.1	38N27.08	0.38	P	P		P	P		P		
38N27.08	38N27.07	37N28.1	0.72	P	P		P	P		P		
38N27.09	37N28.1	37N27.10	0.44	P	P		P	P		P		
38N27.10	38N27.09	37N11	0.57	P	P		P	P		P		
38N27.11	37N11	38N27.12	0.78	P	P		P	P		P		
37N07.1	CTY 1E003	37N02.1	0.5	P	P		P	P		P		
37N07.2	37N02.1	37N02.3	0.1	P	P		P	P		P		
37N07.3	37N02.2	37N07.4	0.79	P	P		P	P		P		
37N07.4	37N07.3	37N10	1.76	P	P		P	P		P		
37N07.5	37N10	37N07.6	1.19	P	P		P	P		P		
37N07.6	37N07.5	UNIT 75	0.48	P	P		P	P		P		
37N10	37N07.4	UNIT 78	0.44	P	P		P	P		P		
38N27.01	38N01.1	38N16.1	0.32	P	P		P	P		P		
37N25	38N27A	UNIT 12	0.33	P	P		P	P		P		
38N27A	38N27.12	UNIT 13	0.21	P	P		P	P		P		
37N11	38N27.10	UNIT 3	0.26	P	P		P	P		P		
17N08	CTY 1E003	UNIT 49	0.41	P	P		P	P		P		
37N02.1	37N07.1	37N02.2	0.39	P	P		P	P		P		
37N02.2	37N02.1	UNIT 47	0.2	P	P		P	P		P		
38N01.1	CTY 1C02	38N27.01	0.17	P	P		P	P		P		
38N01.2	38N27.01	UNIT 28	0.49	P	P		P	P		P		
38N27.02	38N16.1	38N27.03	0.4	P	P		P	P		P		
38N27.03	38N27.02	38N27.04	0.75	P	P		P	P		P		
38N27.04	38N27.03	38N27.05	0.46	P	P		P	P		P		
38N27.05	38N27.04	38N27.06	0.32	P	P		P	P		P		
38N27.06	38N27.05	37N05.1	2.73	P	P		P	P		P		
38N27.12	38N27.11	38N27A	0.96	P	P		P	P		P		
38N16.1	38N27.01	38N16.2	0.98	P	P		P	P		P		
38N16.2	38N16.1	UNIT 55	1.77	P	P		P	P		P		
37N05.1	38N27.06	37N05.2	0.46	P	P		P	P		P		
37N05.2	37N05.1	UNIT 1	0.34	P	P		P	P		P		
37N28.1	38N27.08	37N29.1	0.51	P	P		P	P		P		
37N28.2	37N29.1	37N28.3	0.21	P	P		P	P		P		
37N28.3	37N28.2	UNIT 57	0.51	P	P		P	P		P		
37N29.1	37N28.1	37N29.2	0.3	P	P		P	P		P		

P = Purchaser Performance Item, D = Deposit to Forest Service, D3 = Deposit to Third Party
Maximum volume of Purchaser's responsibility for T-801 slide and slump repair is 0 CY for all roads to be maintained.

Road	Termini		Miles	Prehaul			During Haul			Post Haul		
	From	To		T801	T803		T803	T806		T803		
37N29.2	37N29.1	37N29.3	0.16	P	P		P	P		P		
37N29.3	37N29.2	UNIT 58	0.43	P	P		P	P		P		

P = Purchaser Performance Item, D = Deposit to Forest Service, D3 = Deposit to Third Party
Maximum volume of Purchaser's responsibility for T-801 slide and slump repair is 0 CY for all roads to be maintained.

SPECIFICATION T-800 DEFINITIONS

Wherever the following terms or pronouns are used in Specifications T-801 through T-811, the intent and meaning shall be interpreted as follows:

800-1.1 - Agreement. Maintenance projects require a mutually acceptable method to resolve the problems which arise when incompatible situations arise between drawings and specifications and actual conditions on the ground to allow orderly and satisfactory progress of the maintenance.

These specifications have been developed in anticipation of those problem areas and have provided that such changes will be by Agreement.

It is intended that drawings and specifications will govern unless "on-the-ground" conditions warrant otherwise, when specifications call for "Agreement", "agreed", or "approval" such Agreement or approval shall be promptly confirmed in writing.

800-1.2 - Annual Road Maintenance Plan. A plan prepared by various users of one or several roads. The plan is an Agreement on maintenance responsibilities to be performed for the coming year.

800-1.3 - Base Course. Material used to reinforce Subgrade or, as shown on drawings, placed on Subgrade to distribute wheel loads.

800-1.4 - Berm. Curb or dike constructed to prevent Roadway runoff water from discharging onto embankment slope.

800-1.5 - Borrow. Select Material taken from designated borrow sites.

800-1.6 - Crown, Inslope, and Outslope. The cross slope of the Traveled Way to aid in drainage and traffic maneuverability.

800-1.7 - Culverts. A conduit or passageway under a road, trail, or other obstruction. A culvert differs from a bridge in that it is usually entirely below the elevation of the Traveled Way.

800-1.8 - Drainage Dip. A dip in the Traveled Way which intercepts surface runoff and diverts the water off the Traveled Way. A Drainage Dip does not block the movement of traffic.

800-1.9 - Drainage Structures. Manufactured structures which control the runoff of water from the Roadway including Inslope, overside drains, aprons, flumes, downdrains, downpipes, and the like.

800-1.10 - Dust Abatement Plan. A table which lists the road, dust palliative, application rates, and estimated number of subsequent applications.

800-1.11 - Lead-off Ditches. A ditch used to transmit water from a Drainage Structure or Drainage Dip outlet to the natural drainage area.

800-1.12 - Material. Any substances specified for use in the performance of the work.

800-1.13 - Prehaul Maintenance. Road maintenance work which the Purchaser determines must be accomplished to maintain the roads to a satisfactory condition commensurate with the Purchaser's use, provided Purchaser's Operations do not damage improvements under B6.22 or National Forest resources and hauling can be done safely. This work will be shown in the Annual Road Maintenance Plan as provided in K-F/KT-FT.3.1#.

Prehaul Maintenance work the Purchaser elects to perform will be in compliance with the Road Maintenance T-Specifications.

800-1.14 - Roadbed. The portion of a road between the intersection of Subgrade and sideslopes, excluding that portion of the ditch below Subgrade.

800-1.15 - Road Maintenance Plan. A table which shows applicable road maintenance specifications to be performed by Purchaser on specific roads.

800-1.16 - Roadside. A general term denoting the area adjoining the outer edge of the Roadway.

800-1.17 - Roadway. The portion of a road within the limits of excavation and embankment.

800-1.18 - Shoulder. That portion of Roadway contiguous with Traveled Way for accommodation of stopped vehicles, for emergency use, and lateral support of base and Surface Course, if any.

800-1.19 - Slide. A concentrated deposit of Materials from above or on backslope extending onto the Traveled Way or Shoulders, whether caused by mass land movements or accumulated ravelling.

800-1.20 - Slough. Material eroded from the backslope which partially or completely blocks the ditch, but does not encroach on the Traveled Way so as to block passage of traffic.

800-1.21 - Slump. A localized portion of the Roadbed which has slipped or otherwise become lower than that of the adjacent Roadbed and constitutes a hazard to traffic.

800-1.22 - Special Project Specifications. Specifications which detail conditions and requirements peculiar to the individual project.

800-1.23 - Subgrade. Top surface of Roadbed upon which Base Course or Surface Course is constructed. For roads without Base Course or Surface Course, that portion of Roadbed prepared as the finished wearing surface.

800-1.24 - Surface Course. The Material placed on Base Course or Subgrade primarily to resist abrasion and the effects of climate. Surface Course may be referred to as surfacing.

800-1.25 - Surface Treatment Plan. A table which lists the roads and surface treatments to be applied.

800-1.26 - Traveled Way. That portion of Roadway, excluding Shoulders, used for the movement of vehicles.

800-1.27 - Turnouts. That portion of the Traveled Way constructed as additional width on single lane roads to allow for safe passing of vehicles.

800-1.28 - Water Source. A place designated on the Road Maintenance Map for acquiring water for road maintenance purposes.

800-1.29 - Waterbar. A dip in the Roadbed which intercepts surface runoff and diverts the water off the Roadway. A Waterbar is not designed to be traversable by logging trucks.

SPECIFICATION T-801 SLIDE AND SLUMP REPAIR

DESCRIPTION

1.1 Slide removal is the removal from Roadway and disposal of any Material, such as soil, rock, and vegetation that cannot be routinely handled by a motorgrader during Ditch Cleaning, T-802, and Surface Blading, T-803 Operations.

Slump repair is the filling of depressions or washouts in Roadway which cannot be routinely filled by a motor grader during Surface Blading, T-803 Operations.

Slide removal and Slump repair includes excavation, loading, hauling, placing, and compacting of waste or replacement Material and the development of disposal or borrow areas.

REQUIREMENTS

3.1 Slide Material, including soil, rock and vegetative matter which encroaches into the Roadway, shall be removed. The slope which generated the Slide Material shall be reshaped during the removal of the Slide Material with the excavation and loading equipment. Slide Material deposited on the fillslope and below the Traveled Way will not be removed unless needed for slope stability or to protect adjacent resources.

Surface and Base Courses shall not be excavated during Slide removal operations.

Slide Material which cannot be used for other beneficial purposes shall be disposed of at disposal sites shown on Contract Area Map. Material placed in disposal sites will not require compaction unless compaction is shown on Road Maintenance Plan.

3.2 When filling Slumps or washouts, Material shall be moved from agreed locations or borrow sites shown on Contract Area Map, placed in layers, and compacted by operating the hauling and spreading equipment uniformly over the full width of each layer.

Existing aggregate surfacing shall be salvaged when practical and relaid after depressions have been filled.

Damaged aggregate base, aggregate surfacing, and bituminous pavement shall be repaired under Specification T-804 Surfacing Repair.

The repaired areas of the Slump shall conform to the cross-section which existed prior to the Slump and shall blend with the adjacent undisturbed Traveled Way.

3.3 The maximum volume of Purchaser responsibility for Slide and Slump repair is shown on Road Maintenance Plan. Greater volumes of Slide and Slump repair not qualifying as Catastrophic Damage are Forest Service responsibility.

SPECIFICATION T-803 SURFACE BLADING

DESCRIPTION

1.1 Surface blading is keeping a native or aggregate Roadbed in a condition to facilitate traffic and provide proper drainage. It includes maintaining the Crown, Inslope or Outslope of the Traveled Way, Turnouts, and Shoulder; repairing Berms; blending approach road intersections; and cleaning bridge decks, Drainage Dips, and Lead-off Ditches.

REQUIREMENTS

3.1 Surface blading shall be performed before, during, and after Purchaser's use as often as necessary to facilitate traffic and proper drainage.

3.2 The surface blading shall preserve the existing cross-section. Surface irregularities shall be eliminated and the surface left in a free-draining state and to a smoothness needed to facilitate traffic. Surface Material which has been displaced to the Shoulders or Turnouts shall be returned to the Traveled Way. The blading operation shall be conducted to prevent the loss of surface Material and to provide for a thorough mixing of the Material being worked.

3.3 Water, taken from Water Sources designated on Contract Area Map, shall be applied during blading if sufficient moisture is not present to cut, mix, or compact the surface Material.

3.4 On native surfaced roads, Material generated from backslope Sloughing, and ditch cleaning may be blended with the surface Material being worked. On aggregate surfaced roads this Material shall not be blended with Surface or Base Course Material unless agreed otherwise.

3.5 Roadway backslopes or Berms shall not be undercut, nor shall new Berms be established unless agreed otherwise.

Berms shall be repaired by placing Material, as needed to restore the Berm, to reasonably blend with existing line, grade, and cross-section.

3.6 Drainage Dips and Lead-off Ditches shall be cleaned and maintained to reasonably blend with existing line, grade, and cross-section.

3.7 Intersecting roads shall be bladed for a distance of 50 feet to assure proper blending of the two riding surfaces.

3.8 Rocks or other Material remaining on the Traveled Way after the final pass that are larger than 4 inches in diameter or are larger than the maximum size of imported surfacing shall be removed from the Traveled Way. The oversized Material shall be disposed of by sidecasting, unless shown otherwise on Contract Area Map. Sidecasting into streams, lakes, or water courses will not be permitted.

3.9 Material resulting from work under this specification shall not remain on or in structures, such as Culverts, overside drains, cattleguards, ditches, Drainage Dips, and the like.

3.10 Material resulting from work under this specification, plus any accumulated debris, shall be removed from bridge decks and the deck drains opened.

SPECIFICATION T-806 DUST ABATEMENT

DESCRIPTION

1.1 This work shall consist of preparing Traveled Way and furnishing and applying Materials to abate dust.

MATERIALS

2.1 The roads requiring dust abatement, type of dust abatement Material to be used, the rates of application, and frequency of applications will be shown on Dust Abatement Plan. The Dust Abatement Plan may be changed by written Agreement.

2.2 Water. The locations of Water Sources are shown on Contract Area Map.

Operating Guidelines:

1. Operations are restricted to one hour after sunrise to one hour before sunset.
2. Pumping rate shall not exceed 350 gallons per minute.
3. The pumping rate shall not exceed ten percent of the stream flow.
4. Seek streams and pools where water is deep and flowing, as opposed to streams with low flow and small isolated pools.
5. Pumping shall be terminated when the tank is full. The effect of single pumping operations, or multiple pumping operations at the same location, shall not result in obvious draw-down of either upstream or downstream pools.
6. Each pumping operations shall use a fish screen. The screen face should be oriented parallel to flow for best screening performance. The screen shall be designed and used such that it can be submerged with at least one-screen-geight clearance above and below the screen.
7. Operators shall keep a log on the truck containing the following information:
    a. Operator’s Name
    b. Date
    c. Time
    d. Pump Rate
    e. Filling Time
    f. Screen Cleaned (Y or N)
    g. Screen condition
    h. Comments

Screen Construction Criteria:

1. Surface Area:
    a. The total (unobstructed) surface area of the screen shall be at least 2.5 square feet, based on the upper limit of pumping of 350 gpm. Larger surface areas are recommended where debris buildup is anticipated, and where stream depth is adequate to keep the screen submerged at approximately middepth.

2. Screen Mesh:
    a. Screen Mesh must be in good repair and present a sealed, positive barrier effectively preventing entry of the "design fish" into the intake. The design fish in this case is an immature (20-30mm) salmon or steelhead fry.
    b. The screen mesh size shall be: round openings – maximum 3/32 inch diameter (.09 inch)
    c. Square openings – maximum 3/32 inch diagonal (.09 inch)
    d. Slotted openings – maximum 1/16 inch width (.07 inch)

3. Screen Design:
    a. Water drafting screens maybe off-the-shelf products, but they are often custom-made devices appropriate to the scale and duration of pumping operation. To keep the screen supported and correctly positioned in the water column, adjustable support legs are advised. Screen geometry can be configured either as rectangular or cylindrical, e.e. as a shallow "box-shape" or tubular.
    b. The intake structure shall be designed to promote uniform velocity distribution at all external mesh surfaces. This can be accomplished with a simple internal baffle devise that distributes the flow evenly across the entire surface of the screen. In order to accomplish this, the designer needs to understand the hydraulic characteristics of these devices. There is a tendency for most of the intake water to enter the screen near the hose end, so a typical internal baffle would consist of a pipe (or manifolded set of pipes) which have variable porosity holes at predetermine spacing. We recommend starting near the hose end with approximately 5 – 10% average open area, and gradually increasing the porisity toward the length of the sceen. At a point where screen length exceeds three times the diameter of the suction hose, the baffling effect tends to diminish rapidly. At this point the baffle porosity may approach 100%. A successful baffle system will functionally distribute flow to all areas of the screen. A poorly designed screen may result in high-velocity "hot spots", which could lead to fish impingement on the screen face.
    c. Hydraulic testing of prototype screen designs is recommended where the application is on-going and extensive.
4. Screen Structure:
    a. The screen frame must be strong enough to withstand the hydraulic forces it will experience. However, the structural frames, braces, and other elements that block the flow, change flow direction, or otherwise decrease the screen surface area should be minimized.
5. Screen Cleaning:
    a. The screen shall be cleaned as often as necessary to prevent approach velocity from exceeding 0.33 feet per second. Operators should withdraw the screen and clean it after each use, or as necessary to keep screen face free of debris. Pumping should stop of screen cleaning when approximately fifteen percent or more of the screen area is occluded by debris. A suitable brush shall be on board the truck for this cleaning operation.

b. If the operator notes (1) impingement of any juvenile fissh on the screen face or (2) entrainment of any fish through the screen mesh, he/she should stop operations and notify the Department of Fish & Game and/or NMFS hydraulic engineering staff:
National Marine Fisheries Service
Engineering Section
777 Sonoma Avenue, Suite 325
Santa Rosa, CA 95404
(707) 575-6050

2.3 Dust abatement Materials shall meet the requirements of the following subsections of Forest Service Specifications for Construction of Roads and Bridges or attached Special Project Specifications.

Emulsified Asphalt	702
Blotter Material	703.12
Magnesium or Calcium Chloride Brine	723.01
Calcium Chloride Flake	723.02
Lignin Sulfonate	723.03

2.4 Testing of Materials. Certification and sampling of bituminous Materials lignin sulfonate, and magnesium chloride shall be in accordance with subsections 105.04 or 723.04 of Forest Service Specifications for Construction of Roads and Bridges.

REQUIREMENTS

3.1 General. Dust abatement Materials shall be applied to the road surface as necessary to control road surface loss, provide for road user safety, and minimize damage to adjacent resources.

3.2 Compaction. When the methods listed below specify compaction, Traveled Way shall be compacted by an 8 to 10 ton pneumatic, steel-wheeled or equivalent vibrating roller making 2 passes over the full Traveled Way and Shoulder width, unless compaction is not required on the Dust Abatement Plan (C/CT5.31.

3.3 Preparation to Dust Abatement Materials Other Than Water. The following applies to all methods of preparation:

Bituminous residue shall be scarified and pulverized to produce loosened Material not exceeding 4 inches in greatest dimension.

Traveled Way shall be bladed in accordance with T-803.

Prior to applying DO-6BA, DO-6PA, or DO-8, the top 2 inches of Traveled Way shall contain not less than 80 percent nor more than 120 percent of optimum moisture as determined by AASHTO T-99, Method C. Prior to applying other bituminous Material, Traveled Way shall have a moisture content between 1 and 3 percent.
If surface dusting prevents the bituminous Material from penetrating, a light application of water shall be applied just prior to applying the bituminous Material.

Lignin Sulfonate and magnesium chloride shall be applied when the top 1 inch of Traveled Way contains not less than 3 percent moisture, nor more than 120 percent of optimum moisture as determined by AASHTO T-99, Method C.

Moisture content will be determined in accordance with AASHTO T-217 OR T-239.

One or more of the following methods shall be used, as specified in the Dust Abatement Plan (CT5.31).

Method 1. Compact Traveled Way and apply the dust abatement Material.

Method 2. Develop a layer of loose Material approximately 1 inch in depth for the full width of Traveled Way. Apply the dust abatement Material to this loose Material and compact after penetration. If traffic makes maintenance of the loose Material difficult, 1 inch of the Material may be bladed into a windrow along the Shoulder. The specified moisture content shall be maintained in the windrow and the top 1 inch of Traveled Way. The windrow shall be bladed to a uniform Material. When the dust abatement Material has penetrated, Traveled Way shall be compacted.

Method 3. Blade 1 inch of Material from Traveled Way into a windrow along the Shoulder. Maintain the specified moisture content in the windrow and the top inch of Traveled Way. Apply half the dust abatement Material. When the dust abatement Material has penetrated, the windrow shall be bladed to a uniform depth across dust abatement Traveled Way, and the remaining dust abatement Material shall be applied. Traveled Way shall be compacted.

Method 4. Develop a layer of loose Material approximately 2 inches in depth for the full width of Traveled Way. Apply half the dust abatement Material to the loose Material. Blade the top 2 inches into a windrow along the Shoulder. Apply the remaining dust abatement Material to Traveled Way and the Berm. Spread the Berm evenly across Traveled Way and compact.

3.4 Preparation for Dust Abatement with Water. Traveled Way shall be prepared in accordance with Specification T-803 Surface Blading when required.

3.5 Application Tolerance. Dust abatement Materials other than water shall be applied within 0.05 gallons per square yard of the rate specified.

3.6 Mixing Requirements. DO-6BA, DO-6PA, and DO-8 shall be thoroughly circulated in the distributor within 1 hour of application.

3.7 Weather Limitations. Dust abatement Materials shall not be applied when it is raining.
Bituminous Material shall be applied when the surface temperature of Traveled Way is 50 degrees Fahrenheit or higher.

Lignin sulfonate and magnesium chloride shall be applied when the atmospheric temperature is 40 degrees Fahrenheit or higher.

3.8 Blotter Material. Blotter Material shall be spread in a sufficient quantity to prevent tire pickup.

Dust Abatement Plan (T-806)

Material Type: WATER

Frequency of application:

Abate dust to promote safe use of road and to prevent excessive loss of road material (fines). Dust abatement is required throughout the day while hauling is in progress near resedents, camping areas, or the like. Dust abatement is required as shown below when dust is present during haul:

1. Complete, thorough watering is required once per day over full traveled width of road surface when truck volume is 10 round trips per day or less.
   example: 1 truck makes 10 round trips, or 10 trucks make 1 round trip each.
2. Complete, thorough watering is required throughout the day over full traveled width of road surface when truck volume exceeds 10 round trips per day.
3. Dust abatement other than water must be approved by the Forest Service prior to use.

Preparation Method: Compaction not required.

Roads to be abated with WATER

See KT-FT.3.1 Table for list of roads. All roads listed shall be abated with water.

38N27.07
38N27.08
38N27.09
38N27.10
38N27.11
37N07.1
37N07.2
37N07.3
37N07.4
37N07.5
37N07.6
37N10
38N27.01
37N25
38N27A
37N11
17N08
37N02.1
37N02.2
38N01.1
38N01.2
38N27.02
38N27.03
38N27.04
38N27.05
38N27.06
38N27.12
38N16.1
38N16.2

37N05.1
37N05.2
37N28.1
37N28.2
37N28.3
37N29.1
37N29.2
37N29.3

SPECIFICATIONS PURSUANT TO KT-FT.3.5# - REQUIREMENTS OF ROAD AND WATER SUPPLY USE

Load Limitations	Contractor shall notify Forest Service in writing of the planned size and load distribution for equipment which exceeds the State of California Vehicle Code legal size and weight, and the National Forest System roads to be used. Such notice may be part of plan of operation under GT.3.1.1. Within 15 days after receipt of the written notice Forest Service shall notify Contractor in writing of any regulations or restrictions that may be needed to protect National Forest Transportation Facilities. A written permit shall be required for moving any vehicle which is in excess of the established legal size and weight which is not listed in the above plan, except as may be authorized in prior written agreements.
Existing Non-National Forest System Roads	Roads not shown on Contract Area Map may be used as Temporary Roads if there is agreement before use is started.
Snow Removal	If Contractor removes snow from roads, such work shall be done with Forest Service approval and in a manner that will protect roads and adjacent resources. Snow berms shall be removed or placed to avoid accumulation of melt water on the road and prevent water concentration on erosive slopes or soils. Snow must not be removed to the road surface. A minimum 4 inch snow depth must be left to protect the roadway. If the road surface is damaged, Contractor shall replace lost surface material and repair structures damaged in blading operations prior to hauling, unless climatic conditions prevent necessary work from being accomplished or as otherwise agreed in writing. Single lane roads shall be plowed full width including turnouts. In event double lane roads are not plowed to full width, warning signs shall be required and plowing shall be no less than single lane (12 feet) with intervisible turnouts.

Water Supply Deposits

If Contractor utilizes the water site located N/A, for any listed activity, Contractor shall make deposit with Forest Service for that activity at the time and in the amount shown in the Water Supply Deposit Schedule table below.

WATER SUPPLY DEPOSIT SCHEDULE

Activity	Unit of Payment	Unit Cost	Total Cost	Time of Payment
Not Applicable				

Surface Replacement Deposits

Contractor shall make Required Deposits for deferred surface replacement (16 U.S.C. 537) for use of existing surfaced roads. If applicable, such deposits shall be based upon the volume and distance hauled on the roads and at the applicable rates listed in the table below titled Surface Replacement Deposit Schedule. If Contractor uses surfaced roads under jurisdiction of Forest Service other than those listed, Forest Service may establish applicable rates for such surfaced roads.

SURFACE REPLACEMENT DEPOSIT SCHEDULE

Road No.	From	To	Miles	Rate
38N27.07	37N05.1	38N27.08	0.38	0.023
38N27.08	38N27.07	37N28.1	0.72	0.040
38N27.09	37N28.1	37N27.10	0.44	0.019
38N27.10	38N27.09	37N11	0.57	0.016
38N27.11	37N11	38N27.12	0.78	0.012
37N07.1	CTY 1E003	37N02.1	0.5	0.009
37N07.2	37N02.1	37N02.3	0.1	0.001
37N07.3	37N02.2	37N07.4	0.79	0.006
37N07.4	37N07.3	37N10	1.76	0.009
37N07.5	37N10	37N07.6	1.19	0.004

Contract Area Average Rate: $ .18 /Ton

SCHEDULE PURSUANT TO KT-GT.3.1.5# - PROJECT OPERATIONS SCHEDULE (12/2006)

Subdivision/ Area/Unit	**Conditions of Operation**	**Purpose**
Units: 9, 15, 27, 28, 55, 57, and 62; Specified Roads, and Temporary Roads	No operations from February 1 through September 15	Protect Northern Spotted Owl.
Units: 1, 10, 11, 12, 13, 14, 16, 17, 2, 24, 25, 26, 29, 3, 30, 46, 47, 48, 49, 50, 51, 52, 56, 58, 60, 61, 73, 75, 77, 78, 86, 101, and 102	No operations from February 1 through July 9	Protect Northern Spotted Owl.

SPECIFICATIONS AND TREATMENTS PURSUANT TO KT-GT.4.1# - FELLING, BUCKING AND LIMBING

<table>
<tr><th>Treatment Method</th><th>Felling, Bucking and Limbing Specifications</th></tr>
<tr><td>Limbing</td><td>Outside of construction clearings, Clearcutting Units and regeneration units, unless otherwise provided by GT.4.1.3, Purchaser shall, prior to skidding/yarding operations, cut exposed limbs from products which are to be skidded/yarded. Such limbing of stems shall be done to a top diameter of approximately N/A inches, at which point the top shall be cut from the remainder of the stem.</td></tr>
<tr><td>No Lop
“No Lop”</td><td>Within units or payment units designated NO LOP on Contract Area Map, trees shall be skidded/yarded to agreed landing locations prior to lopping.</td></tr>
<tr><td>Whole Tree Yarding
“Whole”</td><td>Notwithstanding the requirements above, within units or payment units designated “Whole” on Contract Area Map, trees smaller than 24 inches DBH shall be skidded/yarded to agreed landing locations prior to limbing, bucking, and lopping. Trees larger than or equal to 24 inches DBH shall be bucked into two or more pieces with the butt portion being no longer than 41 feet prior to skidding/yarding. The butt log shall be limbed prior to skidding/yarding.</td></tr>
<tr><td>Directional Felling</td><td>Within areas designated DF on Contract Area Map, Included Timber shall be directionally felled away from other ownership, known survey monument, trail, and streamcouses with the use of specialized equipment. Such directional felling shall not be required when in the faller’s judgment it is unsafe to do so, and shall be left standing.</td></tr>
<tr><td>Treatment of Stumps</td><td>N/A</td></tr>
<tr><td>Maximum Log Length</td><td>N/A</td></tr>
<tr><td>Minimum Stump Height</td><td>
<table>
<tr><th>Unit/Subdivision</th><th>Minimum Stump Height (inches)</th><th>Purpose or Reason</th></tr>
<tr><td>All Units</td><td>4”</td><td>Facilitate Timber Acountability</td></tr>
</table>
</td></tr>
</table>

Ground-Based Skidding Table - KT-GT.4.2#

Map Symbol	Requirements
TRAC	Skid road pattern shall be agreed in advance of felling and main skid roads shall be flagged on the ground in advance of felling. Contractor shall stage-log by felling and skidding Included Timber in two or more separate operations when necessary to prevent undue damage to the resources or residual stand. Needed tractor trails shall be constructed in advance of skidding. Products shall be end-lined as needed to protect resources or residual timber from unnecessary damage. The number of chokers shall be limited as necessary to avoid unnecessary damage to resources or residual timber. By agreement, tractors may be used to separate products to prevent stain.
SUSP	Products shall be skidded with leading end clear of ground.
SPACE	Skid roads will average 120 feet from center to center, except where converging.
ENDL	Endlining shall not be required for distances in excess of 75 feet uphill, and 75 feet downhill.
MAX	N/A
MH	Contractor shall cut Included Timber and move it to designated skid trails using equipment with a boom having an operating radius of at least 25 feet for bunching trees, capable of severing, lowering and placing trees up to 24 inches diameter at stump height on the ground prior to skidding. Such equipment must be capable of operating on slopes up to 35%. Notwithstanding above, hand felling using chainsaws may be required in or adjacent to sensitive areas to protect resources from unnecessary damage. Trees which exceed capability of specified equipment may be felled, bucked and skidded in a manner consistent with the requirements of GT.4.1 - Felling and Bucking, KT-GT.4.1# - Felling, Bucking, and Limbing Requirements and the above "TRAC", "SUSP", "SPACE", "ENDL", and "MAX" requirements.
CTL	N/A
PB	N/A
HCTL	N/A

SPECIFICATIONS PURSUANT TO KT-GT.6# - EROSION PREVENTION AND CONTROL.

Vegetative Soil Stabilization N/A

Special Erosion Prevention Measures Contractor shall give adequate treatment by spreading slash or wood chips or by agreement giving other treatment to portion of tractor roads, skid trails, landings, cable yarding corridors, tractor-end lined corridors and Temporary Road fills where necessary to supplement other erosion prevention measures required elsewhere in this contract. In no event shall Purchaser be required to treat more acres than that shown in the legend of Contract Area Map. The specific locations to be treated shall be designated on the ground by Forest Service. These special erosion prevention measures are to be done within the same date and time periods as stated above.

Soil Scarification. N/A

Backblading N/A

Tillage N/A

SPECIFICATIONS PURSUANT TO KT-GT.7# - SLASH TREATMENT *(12/2006)*

Specified slash treatment methods shall be shown on Contract Area Map or listed in the following tables by the following symbols:

Slash Treatment Methods

Symbol	Method	Definition
Buck-L	"Bucking Large Logging Slash"	N/A
Buck-P	"Bucking and Piling"	N/A
Bury	"Burying"	N/A
Chip	"Chipping"	N/A
Deck	"Decking" large material	Logging Slash 10 inches or larger in large end d.o.b. and 6 feet or more in length shall be Decked for disposal by Forest Service by piling pieces parallel to each other.
Mach	"Machine Piling"	Concentrations of Logging Slash, excluding scattered individual pieces, shall be Machine Piled by tractor equipped with brush rake for disposal by Forest Service.
Pile	"Piling" small material	N/A
Remove	"Removing"	N/A
Scat 18" Scat 30"	"Scattering"	Logging Slash shall be scattered to reduce slash concentrations with slash being generally left within 18 or 30 inches of the ground as shown on Contract Area Map. Logging Slash shall be scattered into openings away from and without unnecessary damage to residual trees. All scattered logs shall be limbed, placed away from trees and positioned so they will not roll. When Scattering is specified, another method may be used by agreement.
Stack	"Stacking" small material	N/A
View	"Visible Slash Treatment"	N/A
YUMD	"Yarding Unutilized Material-Decking"	N/A
YUME	"Yarding Unutilized Material-Exterior Boundary"	N/A
YUML	"Yarding Unutilized Material-Landing"	N/A

YUMR	"Yarding Unutilized Material-Removal"	N/A
Cover	"Covering Piles"	N/A
Fell	"Damaged Small Tress"	N/A
Fire-L	"Firelines"	N/A
Fuel-B	"Fuelbreaks"	N/A

PILING SPECIFICATIONS. All piles shall be reasonably compact and free of soil to facilitate burning and shall be constructed of such size and at such distance from trees so that burning shall not result in unnecessary damage to residual timber. Such Logging Slash shall be bucked into lengths not exceeding ten feet prior to piling. Maximum width of tractor, with brush rake attached, shall not exceed N/A inches. Machine Piling is not required on areas where use of tractors would cause undue damage to residual timber or where slopes exceed N/A percent. Piles shall be located a distance of at least twice their height in feet from the outer edge of tree crowns or snags. Piles shall be no less than four feet in height or greater than N/A feet in height. Material extending three feet or more outside the edge of a pile shall be trimmed. An eight foot fuelbreak shall be cleared of all but fine material around each Machine Pile and an 18 inch wide fireline shall be cleared to mineral soil around the outer ring of the fuelbreak. For hand piles, Contractor shall construct a fireline cleared to mineral soil and at least 3 feet wide around each pile. In areas where there is a potential for burning material to roll, firelines, including those for Machine Piles, shall be trenched on the downhill side of each pile to adequately prevent material from crossing firelines. Trenches shall be constructed by hand unless otherwise agreed.

UNIT AND SUBDIVISION.SLASH TREATMENT SPECIFICATIONS.

	SLASH TREATMENT	
Subdivision or Unit No	***Specified Method***	***Prohibited Method***
N/A		

LANDINGS AND DISPOSAL SITES. Unutilized logs accumulated at landings and disposal sites shall be Decked by Contractor for disposal by Forest Service. The maximum height of decks is shown in the following table. Other slash accumulated at landings and disposal sites shall be kept separate from unutilized logs and treated by the method shown in the following table.

		SLASH TREATMENT	
	Subdivision or Unit No.	***Specified Method***	***Maximum Height of Decks***
Landings	All Units except 101 & 102 Units 101 & 102	MACH, DECK SCAT 18	10 feet

TREATMENT ALONG PERMANENT ROADS Permanent roads that require roadside slash treatment are listed in the attached table and shown on Contract Area Map. All Logging and Construction Slash within Required Disposal Strips shall be treated by Contractor. "Required Disposal Strips" are those areas adjacent to permanent roads where slash treatment is required for resource objectives.

The width of Required Disposal Strips is shown in the attached table and is measured in slope distance from Roadbed edges of permanent roads. By agreement, in Clearcutting Units and regeneration units slash from Required Disposal Strips may be treated with other Logging Slash. By agreement the location of Required Disposal Strips may be adjusted from side to side without materially changing the total work required.

Slash treatment in Required Disposal Strips shall be accomplished without affecting the proper functioning of channels leading to and from drainage structures.

Logging Slash larger than treatment size requirements of the specified method shall either be Scattered outside Required Disposal Strip, within Required Disposal Strip or Decked at agreed locations as shown in the attached table.

			SLASH TREATMENT	
Road No.	***Subdivision and/ or Unit No. or Road Juncitons (From To)***	***Width of Required Disposal Strip***	***Specified Method***	***Slash Larger Than Treatment Size Requirements of Specified Method***
N/A				

TREATMENT ALONG TEMPORARY ROADS. Outside of Clearcutting Units or regeneration units, all trees felled or pushed over and trees damaged beyond recovery by Temporary Road construction shall be felled, limbed to a stem d.o.b. of approximately 3 inches, at which point the top shall be cut from the remainder of the stem, and stem shall be bucked into lengths not exceeding 20 feet. Such slash shall be Scattered free of soil to reduce concentrations unless treatment is required by another specified method.

ADDITIONAL SLASH TREATMENT REQUIREMENTS. Within areas shown on Contract Area Map, Contractor shall perform work according to the specifications in the attached Table, unless otherwise agreed in writing.

Subdivision, Payment Units, Roads and or Road Segments	Additional Slash Treatment Requirements
All Units	Yard all stem material to a top d.o.b. of 1 inch, from timber designated for cutting, with the following exception: broken portions of logs and tops less than 4 feet in length need not be yarded. Broken ends of merchantable logs shall not be bucked off in the units. Slash and Substandard Material accumulated at the landings shall be Decked or Machined Piled, in accordance with specifications above. Material accumulated at landings shall be considered as Timber Subject to Agreement under KT-CT.1.1#, described as Substandard Material and may be removed and paid for at Contractor's option.

Repete MP Stewardship Project
Tree Volume (based on original cruise tree data)
(Volume in 100 Cubic Feet - CCF)

PP, JP		WF, RF		DF		SP,WWP	
DBH	Volume	DBH	Volume	DBH	Volume	DBH	Volume
10 in.	.09	10 in.	.08	10 in.	.11	10 in.	.09
11 in.	.11	11 in.	.11	11 in.	.14	11 in.	.30
12 in.	.14	12 in.	.14	12 in.	.18	12 in.	.30
13 in.	.18	13 in.	.18	13 in.	.22	13 in.	.30
14 in.	.22	14 in.	.22	14 in.	.26	14 in.	.32
15 in.	.23	15 in.	.27	15 in.	.31	15 in.	.34
16 in.	.32	16 in.	.32	16 in.	.37	16 in.	.37
17 in.	.38	17 in.	.37	17 in.	.43	17 in.	.41
18 in.	.44	18 in.	.44	18 in.	.50	18 in.	.45
19 in.	.51	19 in.	.50	19 in.	.57	19 in.	.51
20 in.	.59	20 in.	.57	20 in.	.65	20 in.	.57
21 in.	.68	21 in.	.65	21 in.	.74	21 in.	.64
22 in.	.77	22 in.	.73	22 in.	.84	22 in.	.72
23 in.	.87	23 in.	.82	23 in.	.94	23 in.	.80
24 in.	.98	24 in.	.91	24 in.	1.05	24 in.	.90
25 in.	1.09	25 in.	1.00	25 in.	1.16	25 in.	1.00
26 in.	1.22	26 in.	1.10	26 in.	1.28	26 in.	1.11
27 in.	1.35	27 in.	1.21	27 in.	1.42	27 in.	1.22
28 in.	1.49	28 in.	1.32	28 in.	1.55	28 in.	1.35
29 in.	1.64	29 in.	1.43	29 in.	1.70	29 in.	1.48
30 in.	1.80	30 in.	1.55	30 in.	1.86	30 in.	1.62
31 in.	1.97	31 in.	1.68	31 in.	2.02	31 in.	1.77
32 in.	2.16	32 in.	1.81	32 in.	2.19	32 in.	1.93
33 in.	2.35	33 in.	1.94	33 in.	2.37	33 in.	2.09
34 in.	2.55	34 in.	2.08	34 in.	2.56	34 in.	2.26
35 in.	2.76	35 in.	2.23	35 in.	2.76	35 in.	2.44
36 in.	2.98	36 in.	2.38	36 in.	2.96	36 in.	2.63
37 in	3.21	37 in		37 in	3.18	37 in	2.82
38 in.	3.46	38 in.		38 in.	3.41	38 in.	3.03
39 in.	3.72	39 in.		39 in.	3.64	39 in.	3.24
40 in.	3.98	40 in.		40 in.	2.89	40 in.	3.46
41 in.	4.26	41 in.		41 in.	4.14	41 in.	3.68
42 in.	4.56	42 in.		42 in.	4.41	42 in.	3.92
43 in.	4.86	43 in.		43 in.		43 in.	4.16
44 in.	5.17	44 in.		44 in.		44 in.	4.41
45 in.	5.51	45 in.		45 in.		45 in.	4.67
46 in.	5.85	46 in.		46 in.		46 in.	4.93

KT-GT.9# - Stewardship Projects

Project Number 001 - Thin Trees 3.0 inches to 9.9 inches DBH, Whole Tree Yard (WTY), and Pile at Landing in Units 12 and 73

(1) Thin conifers to approximately 90 trees per acre (average 22 X 22 foot spacing). Vary spacing 25% to leave disease and damage-free trees with the best form, and needle color, needle complement and retention, with constant or in-creasing height growth and crown ratios greater than 40%. All live limbs shall be severed from the stump of cut trees. Where trees are otherwise equal, select leave trees in order of preference:

a. sugar pine
b. ponderosa/Jeffery pine;
c. Douglas fir
d. incense cedar
e. white fir
f. red fir
g. knobcone pine

(2) Landing Piles (Mechanical Harvest Units shown on Contract Area Map) yarded whole trees and slash generated from landing operations shall be piled separately to accommodate burning and/or product removal for utilization. Landing pile specifications are the same as those required in R5-KT-GT.7# SLASH TREAT-MENT.(12/2006)

(3) Quality Control Measures - Units will be inspected and accepted if criteria is met by evaluating the preferred leave tree criteria, spacing criteria, and limbing of stumps are at an acceptable level within each unit. If unit is unacceptable contractor will rework the unit at no cost to the government.

Project Number 002 - Thin Trees 3.0 inches to 9.9 inches DBH, Whole Tree Yard, and Pile at Landing in Units 2, 13, 15, 17, 28, 29, 46, 47, 48, 49, 51, 52, 77, and 86.

(1) Thin conifers to approximately 90 trees per acre (average 22 X 22 foot spacing). Vary spacing 25% to leave disease and damage-free trees with the best form, and needle color, needle complement and retention, with constant or in-creasing height growth and crown ratios greater than 40%. All live limbs shall be severed from the stump of cut trees. Where trees are otherwise equal, select leave trees in order of preference:

a. sugar pine
b. ponderosa/Jeffery pine;
c. Douglas fir
d. incense cedar
e. white fir
f. red fir
g. knobcone pine

(2) Landing Piles (Mechanical Harvest Units shown on Contract Area Map) yarded whole trees and slash generated from landing operations shall be piled separately to accommodate burning and/or product removal for utilization. Landing pile specifications are the same as those required in R5-KT-GT.7# SLASH TREAT-MENT.(12/2006)

(3) Quality Control Measures - Units will be inspected and accepted if criteria is met by evaluating the preferred leave tree criteria, spacing criteria, and limbing of stumps are at an acceptable level within each unit. If unit is unacceptable contractor will rework the unit at no cost to the government.

Project Number 003 – Chip and/or otherwise remove biomass material found in landing piles from the project area and deliver to a processing facility. Units 28, 29, 46, 47, 48, 51, and 52.

(1) Upon completion of Optional Project Number 002 if awarded this work item may be included for specified units. Material at the landings that meet the utilization specifications in AT.2 for Timber Subject to Agreement under KT-CT.1.1# may be removed from the project area upon written agreement and paid for at rates indicated in AT.4.2 of the contract.

(2) Quality Control Measures - Landings will be inspected and accepted if material is removed as specified above.

A. Fire Tools and Equipment

Contractor shall meet applicable parts of Section 4428 of the CPRC.

Unless agreed otherwise, Fire tools kept at each Active Landing shall be sufficient to equip all employees in the felling, yarding, loading, chipping, and material processing operations associated with each landing. Fire equipment shall include two tractor headlights for each tractor dozer used in Contractor's Operations. Tractor headlights shall be attachable to each tractor and served by an adequate power source. Fire tools shall be kept in a sealed fire tool box adjacent to the Active Landing and readily accessible in event of fire.

Where cable yarding is used, Contractor shall provide a size 0 or larger shovel with an overall length of not less than 46 inches and a serviceable 5 gallon backpack pump filled with water or a fire extinguisher bearing a label showing at least a 4-A rating must be within 25 feet of each tail and corner block.

Trucks, tractors/skidders, pickups and other similar mobile equipment shall be equipped with and carry at all times a size 0 or larger shovel with an overall length of not less than 46 inches and a 2-1/2 pound axe or larger with an overall length of not less than 28 inches.

All required fire tools shall be maintained in suitable and serviceable condition for fire fighting purposes.

B. Fire Extinguishers

Contractor shall equip each internal combustion yarder, fuel truck, and loader with a (4-A:60-B:C) fire extinguisher for oil and grease fires.

Skidders and tractors shall be equipped with a minimum 5-BC fire extinguisher.

Fire extinguishers shall be mounted, readily accessible, properly maintained and fully charged.

Contractor shall equip all mechanized harvesting machines and log processors with hydraulic systems, powered by an internal combustion engine (e.g. masticator, chipper, feller/buncher, harvester, forwarder, Hot Saw, stroke delimber, etc), with at least two 4-A:60-B:C fire extinguishers or an acceptable CAFS substitute identified in Section K.

C. Spark Arresters and Mufflers

Except for tractors and other equipment with exhaust-operated turbochargers, Contractor shall equip each operating tractor and any other internal combustion engine with an approved spark arrester. There shall be no exhaust bypass on any system.

Spark Arresters shall be a model tested and approved under Forest Service Standard 5100-1a as shown in the National Wildfire Coordinating Group Spark Arrester Guide, Volumes 1 and 2, and shall be properly mounted and maintained according to manufacturer's specifications.

Every motor vehicle subject to registration shall at all times be equipped with an adequate exhaust system meeting the requirements of the California Vehicle Code.

D. Power Saws

Each power saw shall be equipped with a spark arrester approved and maintained in effective working order as identified in the Spark Arrestor Guide in Section C. above and according to applicable parts of CPRC Section 4442 or 4443. An Underwriters Labortories (UL) approved fire extinguisher containing a minimum 14 ounces of fire retardant shall be kept with each operating saw.

A size 0 or larger shovel with an overall length of not less than 38 inches shall be kept with each gas can, but not more than 300 feet from each power saw when used off cleared landing areas.

E. Fire Supervisor & Fire Patrolperson

Contractor shall designate in the fire plan required by HT.1 and furnish on Contract Area during operating hours a fire supervisor, named in writing and authorized to act on behalf of Contractor in fire prevention and suppression matters.

Unless agreed otherwise, Contractor shall furnish and designate in writing, a Fire Patrolperson each operating day when Project Activity Level C or higher is in effect. When on duty, the Fire Patrolperson is required to patrol the operation for the prevention and detection of fires, to take suppression action where necessary and to notify Forest Service as required under Sections I. Reporting Fires and L. Communications. This Fire Patrol is required on foot, unless otherwise agreed.

By written agreement, one Fire Patrolperson may provide patrol on this and adjacent projects or sales. No Fire Patrolperson shall be required on Specified Road construction jobs except during clearing operations unless otherwise specified.

F. Seasonal Permits

Contractor shall obtain written permits from Forest Service before allowing welding, warming fires or burning, subject to KT-HT.2.2# – Emergency Precautions.

G. Clearing of Fuels

Contractor shall clear away, and keep clear, fuels and logging debris as follows:

Welding equipment and stationary log loaders, yarders and other equipment listed in California State Law:	10 feet slope radius
Tail or corner haulback blocks:	All running blocks on a cable yarding operation shall be located in the center of an area that is cleared to mineral soil at least 15 feet in diameter.
Lines near, between or above blocks:	Sufficient clearing to prevent line from rubbing on snags, down logs and other dead woody material.

H. Smoking

All smoking shall be confined within a car, truck, crew rig or other enclosed cab after 1:00 PM on Ev days and all hours on E days (KT-HT.2.2#). At other times, any smoking shall be done while sitting in an area at least 3 feet in diameter, cleared of flammable materials. Burning tobacco and matches shall be extinguished before they are properly disposed.

I. Reporting Fires

As soon as feasible, but no later than **15 minutes** after discovery, Contractor shall notify Forest Service of any fires on Contract Area or along roads used by Contractor.

J. Tank Truck

Contractor shall provide a water tank truck or trailer on or in proximity to Contract Area during Contractor's Operations hereunder during Fire Precautionary Period unless otherwise agreed.

Tank truck or trailer shall contain at least 300 gallons of water and comply with the following requirements:

(1) Pump, which at sea level, can deliver 23 gallons per minute at 175 pounds per square inch measured at the pump outlet. Pumps shall be tested on Contract Area by Forest Service using a 5/16 inch orifice with a one inch in line test kit and shall meet or exceed the pressure values identified in the following table for nearest temperature and elevation:

Temp	Sea Level		1000 Feet		2000 Feet		3000 Feet		4000 Feet		5000 Feet		6000 Feet		7000 Feet		8000 Feet		9000 Feet		10000 Feet	
55	179	23	174	23	169	23	165	22	161	22	157	22	153	22	150	21	146	21	142	21	139	21
70	175	23	171	23	166	22	162	22	158	22	154	22	150	21	147	21	143	21	139	21	136	20
85	171	23	168	23	163	22	159	22	155	22	151	21	147	21	144	21	140	21	136	20	133	20
100	168	23	164	23	159	22	155	22	152	22	148	21	144	21	141	21	137	20	133	20	131	20
	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM

The pump outlet shall be equipped with 1-1/2 inch National Standard Fire Hose thread. A bypass or pressure relief valve shall be provided for other than centrifugal pumps.

(2) 300 feet of 3/4-inch inside diameter rubber-covered high-pressure hose mounted on live reel attached to pump with no segments longer than 50 feet, when measured to the extreme ends of the couplings. Hose shall have reusable compression wedge type 1-inch brass or lightweight couplings (aluminum or plastic). One end of hose shall be equipped with a coupling female section and the other end with a coupling male section. The hose shall, with the nozzle closed, be capable of withstanding 200 PSI pump pressure without leaking, distortions, slipping of couplings, or other failures.

(3) A shut-off combination nozzle that meets the following minimum performance standards when measured at 100 P.S.I. at the nozzle:

	G.P.M.	Horizontal Range
Straight Stream	10	38 feet
Fog Spray	6 - 20	N/A

(4) Sufficient fuel to run pump at least 2 hours and necessary service accessories to facilitate efficient operation of the pump.

(5) When Contractor is using Hot Saws or Masticators an additional 250 feet of light weight hose, approved by Forest Service, shall be immediately available for use and be capable of connecting to the 300 feet of hose and appurturances in (2) and (3) above.

(6) This equipment and accessories shall be deliverable to a fire in the area of operations and is subject to the requirements for each specific activity level identified in KT-HT.2.2#.

K. Compressed Air Foam System (CAFS)

A fire suppression system where compressed air is added to water and a foaming agent. By agreement, Contractor may substitute a CAFS or functional equivalent in lieu of the tank truck, trailer or fire extinguishers, provided it meets or exceeds the following specifications and requirements:

1. Variable foam expansion ratio – 10:1 to 20:1.
2. Units shall be kept fully charged with air; water and foam concentrate as recommended by the manufacturer and have the appropriate tools to service the system.
3. The unit shall contain enough energy to empty tank and clear hose prior to exhausting propellent.
4. The unit shall be capable of being completely recharged within 10 minutes.
5. When used on cable yarding landings, the unit shall be outfitted for immediate attachment to carriage and transported without damage to the unit.

Fire extinguishers required for Hot Saws, Masticators and similar equipment identified in Section B. above may be substituted with a 3 gallon CAFS.

Tank truck, trailer or equivalent may be substituted with a 30 Gallon CAFS with at least 550 feet of one inch hose and an adjustable nozzle with enough water, air and foam concentrate for at least one recharge.

This equipment and accessories shall also be deliverable to a fire in the area of operations and subject to the requirements for each specific activity level identified in KT-HT.2.2#.

L. Communications

Contractor shall furnish a serviceable communications system such as a telephone, radio-telephone, radio system or satellite phone connecting each operating side within the Contract Area with Contractor's headquarters, and capable of notifying Forest Service within **15 minutes** of discovery of any fires on the Contract Area or along Contractor’s haul route. When such headquarters is at a location which makes communication to it clearly impractical, Forest Service may agree to a reasonable alternative notification method.

A Citizen’s Band (CB)radio is not acceptable communications.

M. Cable Yarding Tank Unit

When all or part of Included Timber will be harvested by a long span (over 1,500 feet)cable yarding operation, Contractor shall provide at each active cable yarding landing a tank truck, trailer or acceptable CAFS substitute which can be lifted and transported by the carriage.

The unit shall meet the same requirements as specified for the tank truck, trailer or approved CAFS substitute.

N. Helicopter Yarding Fire Precautions

Contractor shall provide and maintain fire equipment as follows:

1. The fire tool box required under this provision shall be equipped for attachment to the helicopter long line so that it may be hauled to needed locations. Such attachment device shall not interfere with access to fire tools. Unless agreed otherwise, the fire tool box shall be located at the Active Landing ready for immediate dispatch.
2. An external helibucket readily attachable to the helicopter, with a capacity of at least 500 gallons, and having a remote control door mechanism adequate for rapid dropping of water. The helibucket shall be located at the helicopter service landing and shall be filled with water ready for immediate dispatch unless otherwise agreed.
3. All aircraft used in conjunction with Contractor's Operations shall be equipped with an operable radio system capable of meeting Region Five avionics requirements.
4. For protection of fuel servicing operations, fire extinguishers which have the following ratings based on the open hose discharge capacity, i.e., "broken hose," of the aircraft fueling system shall be readily available:
   a. Where said capacity does not exceed 200 gallons per minute, at least one approved extinguisher having a minimum rating of 20-B;
   b. Where said capacity is in excess of 200 gallons per minute, but not over 350 gallons per minute, one approved extinguisher having a minimum rating of 80-B;
   c. Where said capacity is in excess of 350 gallons per minute, two approved extinguishers, each having a minimum rating of 80-B.
5. By agreement, a suitable CAFS may also be used in lieu of the above extinguishers.
6. Extinguishers of over 50 pounds gross weight shall be of wheeled type or be mounted on carts to provide mobility and ease of handling.

PROJECT ACTIVITY LEVEL (PAL) – KT-HT.2.2# - EMERGENCY PRECAUTIONS

PROJECT ACTIVITY LEVEL TABLE

Level	***Project Activity Minimum Requirements and Restrictions. Restrictions at each level are cumulative.***
A	Minimum required by KT-HT.2#.
B	1. Tank truck, trailer, or approved CAFS substitute shall be on or adjacent to the Active Landing.
C	1. When Hot Saws or Masticators are operating, a tank truck, trailer or approved CAFS substitute shall be within ¼ mile of these operations. Effective communications shall exist between the operator and the Active Landing. 2. Immediately after Mechanical Operations cease, Fire Patrol is required for two hours.
D	1. Immediately after Hot Saw or Masticator operations cease, Fire patrol is required for three hours. 2. No Dead Tree felling after 1:00 PM, except recently dead. 3. No Welding or cutting of metal after 1:00 PM, except by special permit.
Ev	1. The following activities may operate all day: a) Loading and hauling logs decked at approved landings. b) Loading and hauling chips stockpiled at approved landings. c) Servicing equipment at approved sites. d) Dust abatement, road maintenance (Chainsaw use prohibited), culvert installation within cleared area, chip sealing, paving, earth moving or rock aggregate stock pile loading and installation (does not include pit or quarry development). e) Chainsaw and log processing operations associated with loading logs or other forest products at approved landings. 2. Hot Saws or Masticators may operate until 1:00 PM; provided that: a) A tractor or other equipment with a blade capable of constructing fireline is on or adjacent to the active landing or within ¼ mile of the operating equipment. This piece of equipment shall have effective communication with the Hot Saw or Masticator. b) Any additional restrictions specified by the Forest. 3. All other conventional Mechanical Operations are permitted until 1:00 PM.

	4. Some operations may be permitted after 1:00 PM, on a case-by-case basis, under the terms of a PAL Ev Variance Agreement. Activities for which a Variance may be issued are: • Rubber Tire Skidding • Chipping on Landings • Helicopter Yarding • Fire Salvage When approved by a Line Officer, a Variance Agreement can be implemented when the criteria specified in the agreement are met and mitigation measures are in place. This approval is good for ten (10) days unless cancelled sooner or extended by the Contracting Officer for an additional ten (10) days. Variance approval can be withdrawn at the sole discretion of Forest Service. Variance approval is contingent on the 7-day fire weather forecast, fuel conditions, site characteristics, current fire situation, state of Contractor's equipment for prevention and suppression readiness, type of operation and social and community considerations etc. (See attached Project Activity Level Variance Agreement).
E	The following activities may operate all day: 1. Loading and hauling logs decked at approved landings. 2. Loading and hauling chips stockpiled at approved landings. 3. Servicing Equipment at approved sites. 4. Dust abatement, road maintenance (chainsaw use prohibited) or loading stock piles and rock aggregate installation (does not include pit or quarry development). 5. Chainsaw operation associated with loading at approved landings. All other activities are prohibited.

SPECIFICATIONS PURSUANT TO KT-HT.2.2# – EMERGENCY PRECAUTIONS. (10/2010)

Region 5 Project Activity Level (PAL) Ev Variance Application/Agreement

Project Name: _____
Contract Number: _____
Purchaser/Contractor Name: _____
Request #__, for period: _____
Units/Subdivisions Affected: _____

Location of operation:	
Slope	
Aspect	
Elevation	
Fuels on site	
Fuels in surrounding area	
7 Day PAL Outlook	
Short range predictions (Red Flags)	
Fuel Moistures	
Response time of suppression resources	
Potential for ignition	
RAWS location	
Current Fire Situation:	
Draw down information	
National Readiness Level	
Contractual considerations:	
Normal Operating Season	
Frequency of recent contract fires in area	
Type of operation	
Purchaser/Contractors past/current performance & equipment readiness	
Other site specific mitigation or precaution (i.e. Purchaser/Contractors proposals)	
Social & Community Considerations:	
Proximity of high value resources	
Sensitivity of location	

Remarks:

Ev Proposed Actions

- ☐ **Rubber Tired Skidding**
- ☐ **Chipping on Landings**
- ☐ **Helicopter Yarding**
- ☐ **Fire Salvage**

Description of Mitigation Measures

Fire Management Officer Concurrence _____ Date _____

Line Officer Approval _____ Date _____

I have considered the above request and determined the specified mitigation measures or actions must be implemented to continue operations in Project Activity Level Ev. Unless extended, the approval remains in effect for ten (10) calendar days unless cancelled sooner or extended by the Forest Service for an additional ten (10) days. At the sole discretion of the Forest Service, this variance can be modified and/or cancelled at no cost to the government.

Contracting Officer _____ Date _____

Purchaser/Contractor Rep. _____ Date _____